Digital Multiplex Recorder

BT-9160

User Manual

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1. Introduction

Thank you for choosing this high quality, **Borsatec** Digital Multiplex Recorder. The DMR converts analog PAL video to digital images and records them to a removable hard disk drive. Digitally recorded video has many advantages compared to analog video recorded on tape. There is no need to adjust tracking. Digital video can be indexed by time schedule or events, and you can instantly view video after selecting the time or event. You can freeze frames, fast-forward, fast- reverse, slow-forward, and slow-reverse without image streaking or tearing. It can be used as a replacement for both a time-lapse VCR and a multiplexer in a security installation.

1.1 Safety Warning

All the safety and operating instructions should be read before the operation. The improper operation may cause permanent damage.

1.1.1 Please lift and place this equipment gently.

1.1.2 Do not expose this equipment to direct sunlight.

1.1.3 Do not use this equipment near water or in contact with water.

1.1.4 Do not spill liquid of any kind on the equipment.

1.1.5 Please power down the unit before unplugging.

1.1.6 This equipment should be operated only with the power supply provided.

1.1.7 Unauthorized repair or parts substitutions may result in fire, electric shock or other hazards.

1.1.8 Do not switch the Power On & Off within short period of time (within 3 seconds).

1.1.9 Do not attempt to service this equipment by yourself. Refer all servicing and repair to qualified service personnel.

1.1.10 Installation should be made by qualified service personnel and should conform to all local safety codes and regulations.

1.2 Features

1.2.1 Wavelet Compression Format replaces Time-Lapse VCR + Multiplexer

1.2.2 4 Audio inputs / 2Audio outputs

1.2.3 On Screen Display and RTC (Real time clock) Function

1.2.4 Multiplexing

- Support from 4 channels up to 7/ 9/ 10/ 13/ 16 channels.
- 16 channels can record or display real-time recorded images.
- 16 channels loop through terminal.

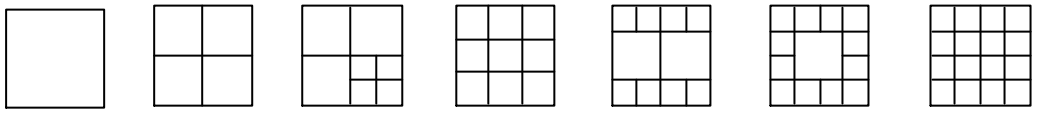
1.2.5 Resolution

Screen Modes	Resolution
Full screen	704(H) x 564(V)
4 channels	352(H) x 282(V)
9 channels	224(H) x 188(V)
16 channels	176(H) x 141(V)

1.2.6 Independent main and call monitor outputs allow simultaneous multi-camera or full screen viewing.

1.2.7 Multi Screen Display Mode

- Below display formats are selectable in live and DMR Playback modes:



Full Screen Quad 7 CH 9 CH 10 CH 13 CH 16 CH

1.2.8 Picture-In-Picture (PIP) is available in live and DMR playback modes, Zoom capability up to 2 X 2 in live and DMR playback modes

1.2.9 16 channels are swappable and each channel has an independent title generator (up to 6 characters).

1.2.10 Motion detection using 15x14 target motion detection grids for each video channel.

1.2.11 Video Quality Adjustable on Each Channel

1.2.12 Alarm Input Function & Output Function

1.2.13 16 channels alarm input, ALARM display and one alarm output.

- Video loss detected on each channel can record 160 events.

1.2.14 Power-loss memory function: set up parameters will remain, in case of power failure.

1.2.15 Call Monitor: Sequence Display

1.2.16 Support 2 Removable HDD, IDE Type

1.2.17 Timer: Schedule recording

1.2.18 Display refresh rate up to 50 IPS

1.2.19 Record refresh rate up to 12 IPS

1.2.20 Quick Multiple Search by date/time, alarm, full list

1.2.21 Fast and slow playback in multiple speeds.

1.2.22 Security password protection

1.2.23 RS-232, RS-485 communication protocol

Specifications

Video format	PAL/CCIR
Hard disk storage	IDE type, UTMA 66 above, 2 removable HDDs supported
Record mode	Manual / Alarm / Timer
Camera Input Signal	Composite video signal 1 Vp-p 75Ω BNC, 16 channels
Camera Loop Back	Composite video signal 1 Vp-p 75Ω BNC, 16 channels
Main Monitor Output	Composite video signal 1 Vp-p 75Ω BNC
Call Monitor Output	Composite video signal 1 Vp-p 75Ω BNC
Audio input	4 audio inputs, (RCA)
Audio output	2 audio outputs, (RCA)
Motion Detect Area	15 X 14 targets per camera
Motion Detect Sensitivity	256 Levels
Video Loss Detection	Yes
Refresh Rate	50 images/sec
Recording Rate	12 images/sec
Dwell Time	Programmable (1~10 Sec)
Picture in Picture	Yes (Movable)
Key Lock	Yes
Picture Zoom	2X2 (Movable)
Camera Title	6 letters
Video Adjustable	Color/ Contrast/ Brightness Adjustable
Alarm Input	TTL input, Hi (5V), Low (GND)
Alarm Output	COM,/N.O/N.C.
Remote Control	RS-232 or RS-485
Time Display Format	YY/MM/DD, DD/MM/YY, MM/DD/YY, OFF
Power Source	AC100~240V ± 10% switching adaptor
Power Consumption	*<45W*
Operation Temperature	*10 ~ 40?*
RS-232C / RS-485 (bps)	*115200? 57600? 19200? 9600? 4800? 3600? 2400? 1200*
Dimension (mm)	432(W) x 110(H) x 325(D)
Net Weight	*5.7 kgs*

Specifications are subject to change without notice.

2. Installation

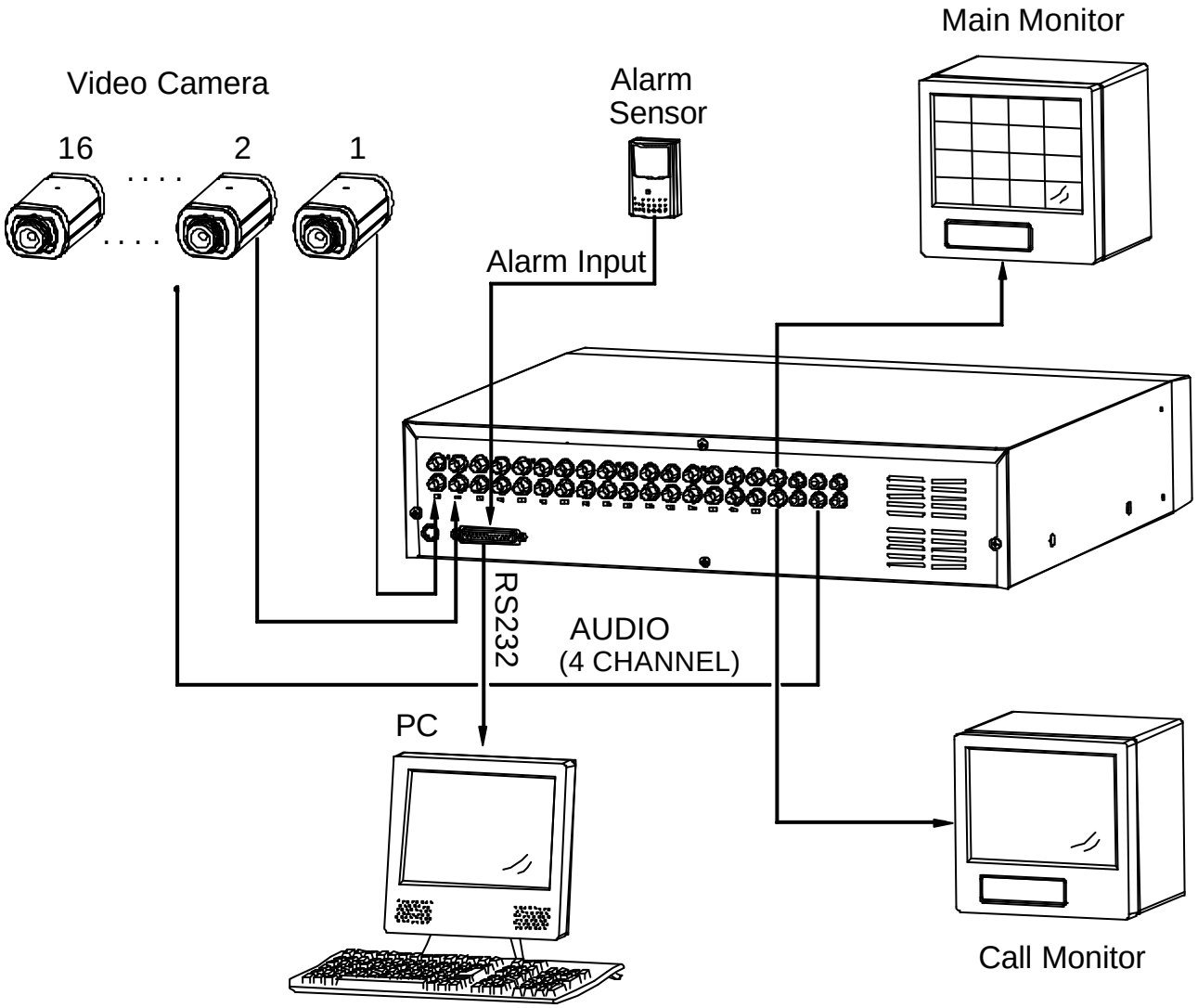
2.1 Package contents

The package contents the following items.

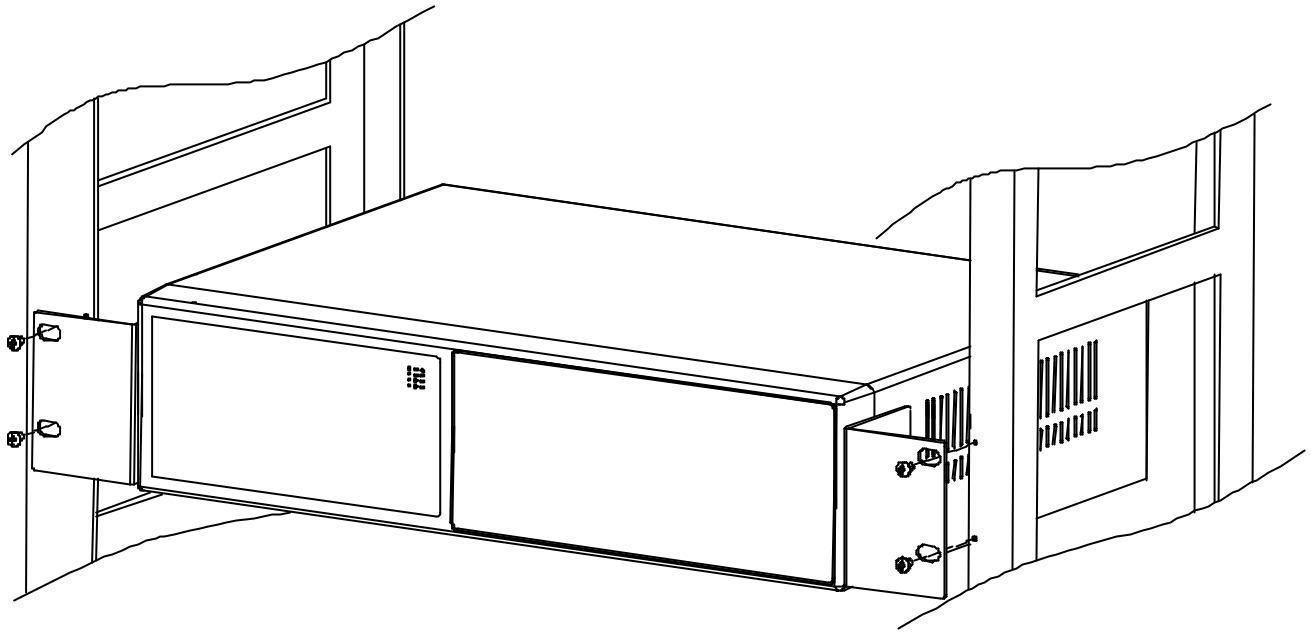
- Digital Multiplex Recorder
- HDD cartridge x 2
- Key for cartridge (Inside of HDD cartridge)
- Power cord
- User manual
- Rack mounting kit (Optional)

2.2 Connection

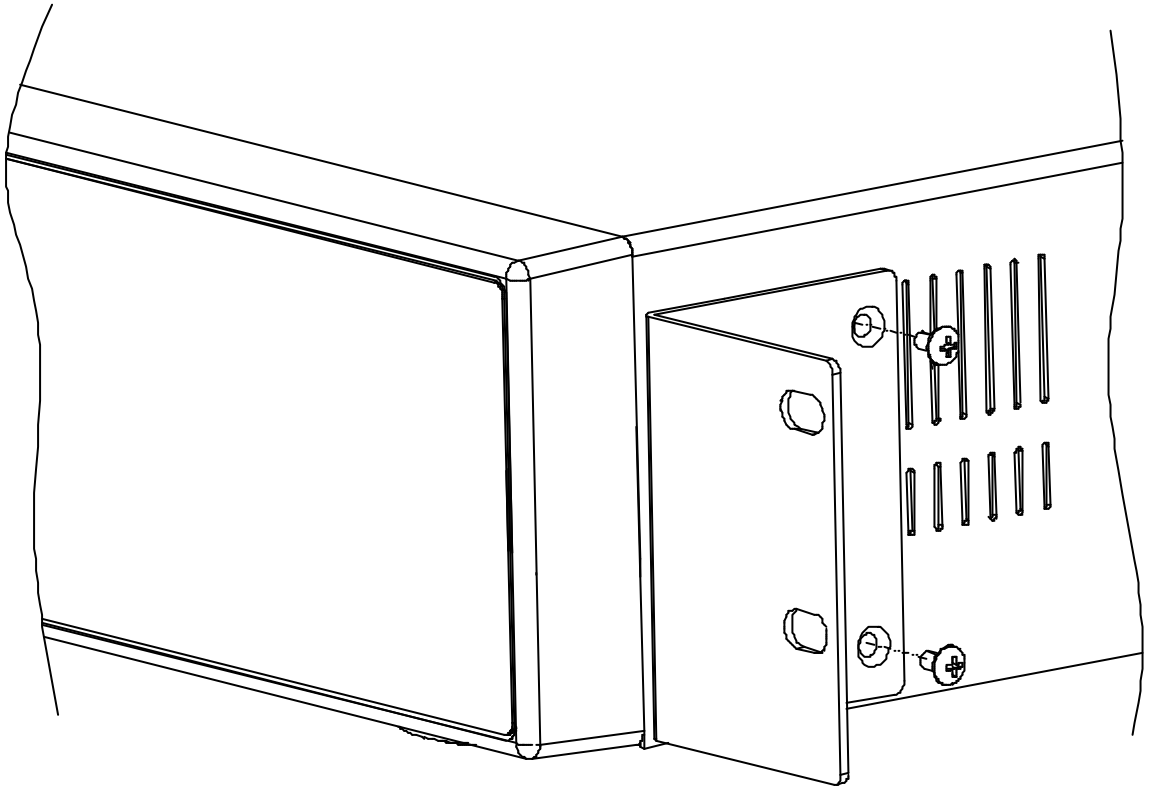
2.2.1 Connect with cameras



2.3 Rack mount installation



Front Angle with Rack Mount

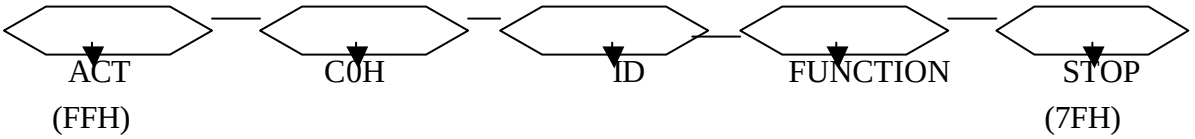


Side View with Rack Mount

2.4 RS232 Remote Protocol

You can use the PC keyboard to simulate DMR keypad.

DATA: REMOTE PROTOCOL using 8 bit data? 1 start bit? 1stop bit



FUNCTION	CODE	ASCII	FUNCTION	CODE	ASCII
KEY_MENU	0x4D	M	KEY_CH1	0x31	1
KEY_SELECT	0x73	s	KEY_CH2	0x32	2
KEY_ENTER	0x0D	ENTER	KEY_CH3	0x33	3
KEY_4CUT	0x61	a	KEY_CH4	0x34	4
KEY_ZOOM	0x5A	Z	KEY_CH5	0x35	5
KEY_9CUT	0x62	b	KEY_CH6	0x36	6
KEY_PIP	0x70	p	KEY_CH7	0x37	7
KEY_16CUT	0x63	c	KEY_CH8	0x38	8
KEY_SLOW	0x53	S	KEY_CH9	0x39	9
KEY_REC	0x72	r	KEY_CH10	0x41	A
KEY_LEFT	0x4C	L	KEY_CH11	0x42	B
KEY_UP	0x55	U	KEY_CH12	0x43	C
KEY_PLAY	0x50	P	KEY_CH13	0x44	D
KEY_DOWN	0x4E	N	KEY_CH14	0x45	E
KEY_RIGHT	0x52	R	KEY_CH15	0x46	F
KEY_POWER	0x57	W	KEY_CH16	0x47	G
KEY_KEY_LOCK	0x4B	K			

3. Configuration

3.1 Install HDD

3.1.1 Installing Hard Drive into Cartridge

3.1.1.1. Pull the handle outwards to remove the carrier body away from the cartridge frame.
3.1.1.2. Push the open button to slide the top cover backwards and remove.
3.1.1.3. Inside can be found the keys and fixing screws.
3.1.1.4. Insert the DC power cable and IDE cable on the HDD.
3.1.1.5. Position the HDD into carrier body and secure the HDD with the four 6#-32 screws provided.
3.1.1.6. Slide the top cover back to the carrier body by sliding it forward to secure.
3.1.1.7. Slide the carrier body back into the cartridge frame.

3.1.2 Function Settings and Operation

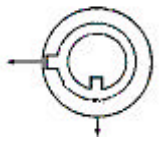
3.1.2.1 Power Indicator and HDD Access indicator

When power is on, the indicator will display the following message:

Item	Indicator
Power Indicator	Green LED
HDD Access Indicator	Yellow LED

3.1.3 Key lock

A



B

Status / Segment	Power status	Security status
A	ON	Locked (Irremovable)
B	OFF	Unlocked (Removable)

You must turn key lock to "A" position before powering on the unit. Otherwise HDD will not operate properly.

3.1.4 The Record Time is different based on Record Speed and Record Quality.

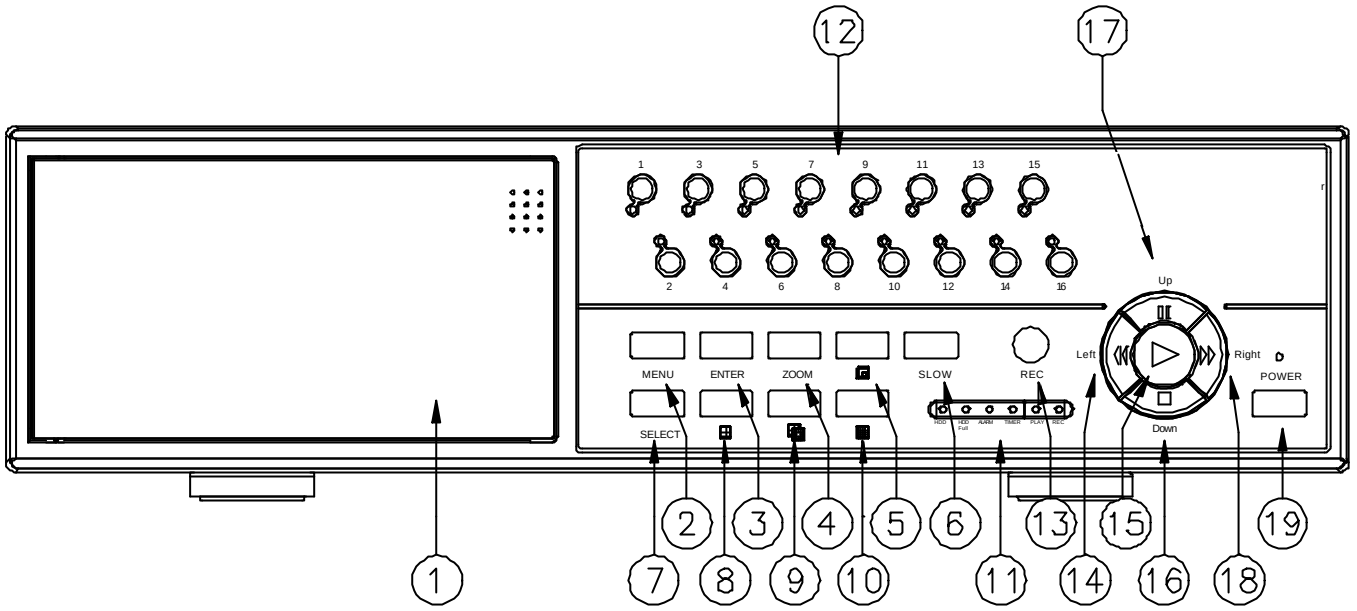
Please refer to following table.

PAL SYSTEM

IPS		12A	12	6	3	2	1
Record Quality	Best	48hr	100hr	202hr	406hr	608hr	1216hr
	High	60hr	126hr	254hr	506hr	760hr	1520hr
	Normal	98hr	202hr	406hr	810hr	1216hr	2440hr
	Basic	162hr	336hr	676hr	1350hr	2026hr	4050hr
HDD Type		240GB					

Note: Above data is only a guide and actual capacities will vary depending on amount of activity.

Front panel keypad



Please follow the instructions below to operate this unit.

1. **Install HDD**

   This unit comes with two removable hard disk drive trays. Before turning on this device, you must install at least one hard disk drive (not including in standard package), and make it ready to operate.
   (If two HDDs are set up, one should be selected as " Master" and the other should be selected as " Slave". Otherwise, please set two HDDs to Cable Select.)

2. **MENU** : Press **MENU** to enter main menu operation mode, and press administrator password (default:0000) to access main menu.

3. **ENTER** : Press **ENTER** for confirmation.

4. **ZOOM** : Press **ZOOM** button to enlarge the main monitor picture display.

5. ⧈ : Picture in Picture. Press PIP button to enter PIP display screen.

6. **SLOW** : To press **SLOW** to slow down speed of play mode.

7. **Select** : Press the Select button to select the required camera (1~16) to display on full screen mode.

8. ⊞ : 4 channels display mode

9. ▦ : 7, 9, 10, 13 channels display mode

10. ▦ : 16 channels display mode

11. **LED Light** : Under following condition, the LED Light is ON.

    (1) HDD **:** HDD is activated
    (2) HDD Full: HDD is full

(3) ALARM: When Alarm Enable : Yes (when the alarm is triggered, the led is flashing)
(4) TIMER: When Timer Enable : Yes
(5) PLAY: Play operation
(6) REC: Recording operation

12. **CAMERA (1-16)** : Press the **Camera Select (1-16)** to select the required camera

13. **REC** : Press **REC** to start recording.

14. **REW / Left** :

REW : Under DMR play mode, it can play video backward at high speed, and press REW again to adjust speed from 1, 2, 4, 8, 16, 32 times

Left : Under setup mode , it can work as **Left** button.

15. **PLAY** : Press **PLAY** to play recorded video.
16. **STOP / Down** :

STOP : Under DMR Record/Play mode, it can play video stop recording.

Down : Under setup mode , it can work as **Down** button.

17. **PAUSE / Up** :

Pause : To pause video in DMR Play mode.

Up : Under setup mode , it can work as **Up** button.

18. **FF / Right** :

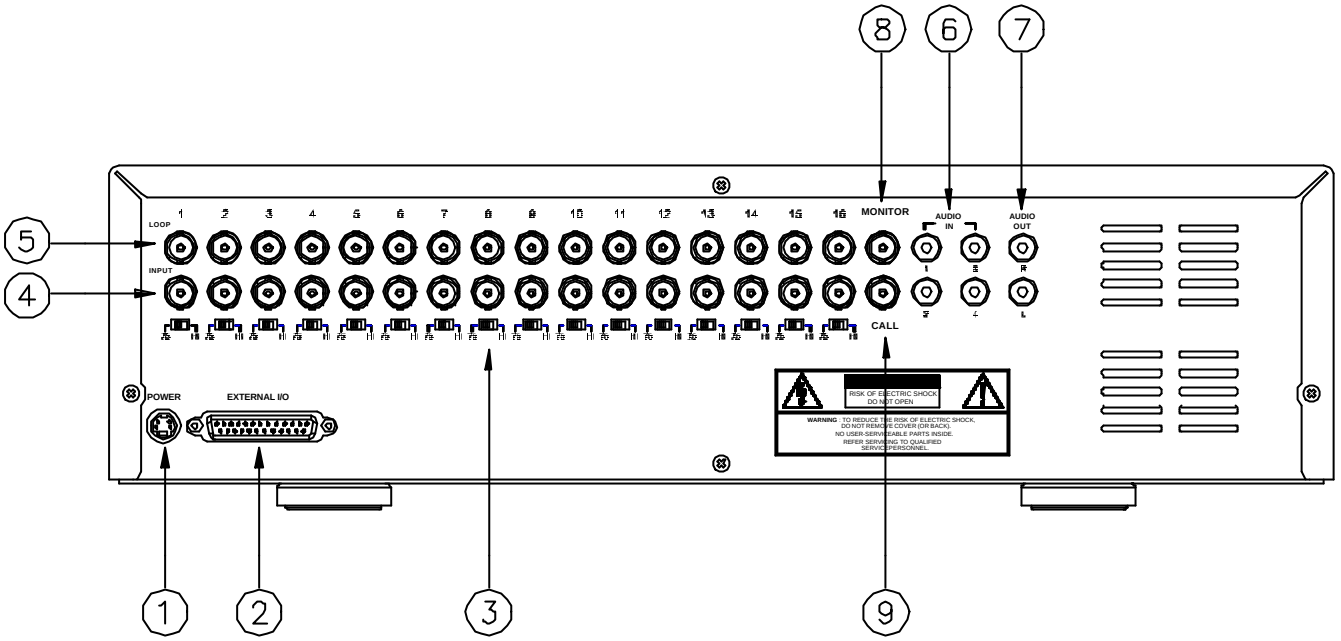
FF : Under DMR play mode, it can play video forward at high speed, and press **FF** again to adjust speed from 1, 2, 4, 8, 16, 32 times.

Right : Under setup mode , it can work as **Right** button.

19. **POWER :** To power on, press power button.
To power off, press power button again.

Note 1 . When there is no activity on the Menu Setup for 60 seconds the system will revert to normal.

3.3 Back panel connection



3.3.1 **Power input**

Please use the power provided adaptor.

3.3.2 **External I/O**

Controlled remotely by an external device or control system.

Alarm input / output.

3.3.3 **75 / HI**

When using Loop through function, please switch to **HI**.

3.3.4 **VIDEO INPUT (1-16)**

Connect to video source, such as camera.

3.3.5 **Loop**

Connect cable to Loop port to connect to another device.

3.3.6 **AUDIO IN (1-4)**

Connect to audio source, such as microphone.

*** IPS should be set to 12A**

3.3.7 **AUDIO OUT (R/L)**

Connect to monitor or speaker.

*** IPS should be set to 12A**

3.3.8 **MONITOR**

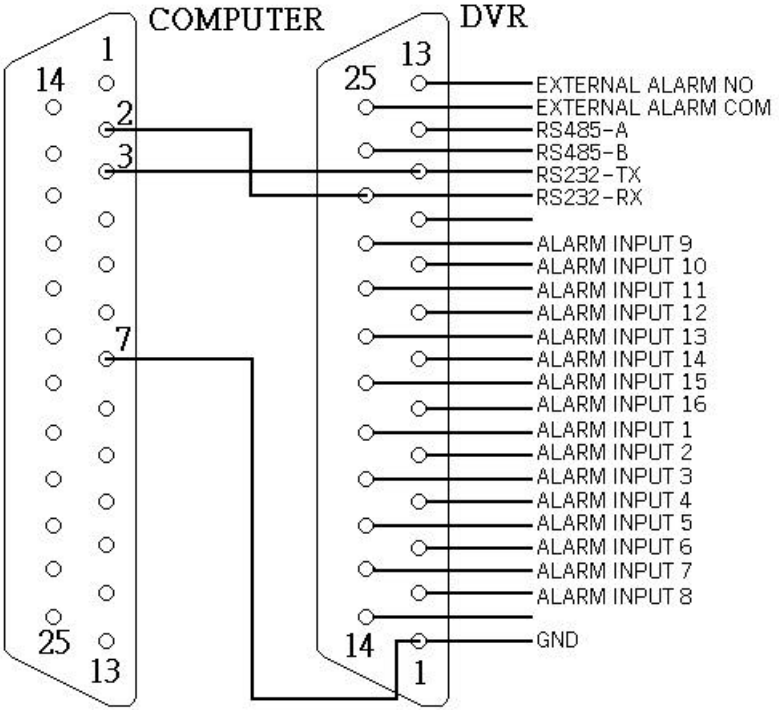
Connect to Main monitor

3.3.9 **CALL**

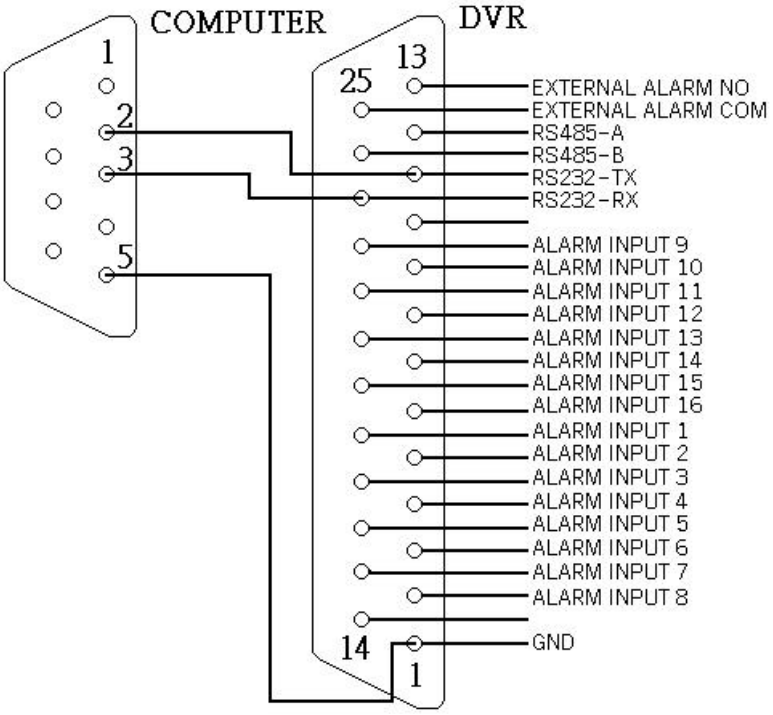
Connect to CALL monitor. Displays the sequenced output.

3.3.9 External I/O

25 pin com port



9 pin com port



PIN 1. GND

GROUND

PIN 2. – PIN 9 , PIN 15 – PIN 22. ALARM INPUTS

When a connection is made between an alarm input and to **GND (PIN 1)** on the **D25** connector, the DMR will start recording and the buzzer will sound.

When Menu/ Camera/ Alarm is set up to “Low”: When alarm input signal is “ Low ”, the unit starts to record and sounds buzzer.

When Menu/ Camera/ Alarm is set up to “High”: When alarm input signal is “ High ”, the unit starts to record and sounds buzzer.

PIN 10. NO Connection

PIN 11/23. RS232-TX / RS232-RX

DMR can be controlled remotely by an external device or control system, such as a control keyboard, using RS-232 serial communications signals.

PIN 12/24. RS485-A / RS485-B

DMR can be controlled remotely by an external device or control system, such as a control keyboard, using RS485 serial communications signals.

PIN 13/25. EXTERNAL ALARM NO

Under normal operation COM is disconnected from NO. But when an Alarm is triggered, COM connects with NO.

PIN 14. NO CONNECTION

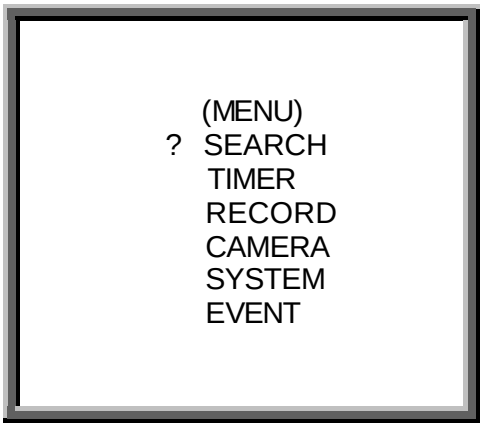
3.4 Menu setup

Press **"MENU"** to enter main menu. A password is required to access main menu. Press "**Right**" "**Left**" to move digit, and Press "**Up**" "**Down**" to select number. Press **"ENTER"** button to confirm password.

Ex.: Password : 0000 (Default : 0000)

After keying in the correct password and confirming by pressing **"ENTER"** button, the screen will show the following options.

SEARCH ------- Find recorded list
TIMER -------- Scheduling Record
RECORD------- Record Mode Setup
CAMERA ------- Camera Channel Setup
SYSTEM ------- System Setup
EVENT -------- Event List



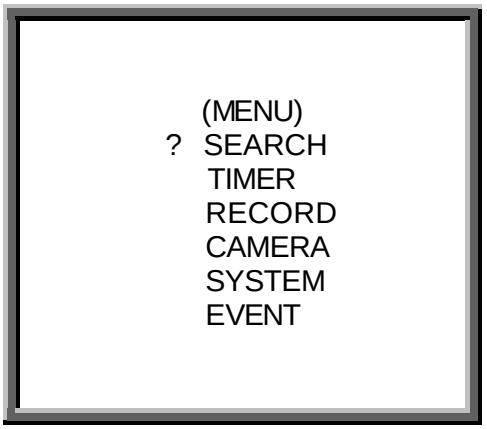
3.5 System setup

Press **"MENU"** to enter the main menu. It is necessary to enter the password to access the main menu. Press "**Right**" "**Left**" to move digit, and Press "**Up**" "**Down**" to select number. Press **"ENTER"** button to confirm password.

Ex.: PASSWORD : 0000 (Default : 0000)

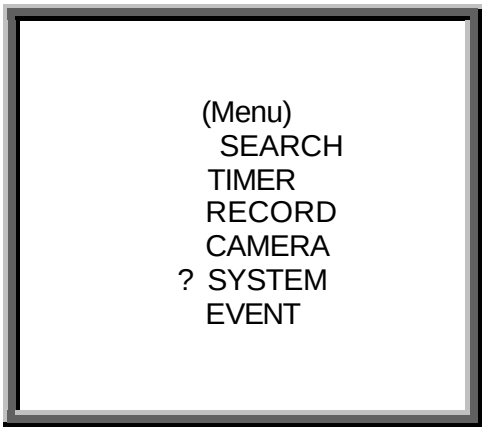
After keying in the correct password, and confirming by pressing the **"ENTER"** button, the screen will show the following options.

SEARCH ------- Find recorded list
TIMER -------- Scheduling Record
RECORD------- Record Mode Setup
CAMERA ------- Camera Channel Setup
SYSTEM ------- System Setup
EVENT -------- Event List



Press "**Up**" "**Down**" to choose **SYSTEM** setup

SEARCH
TIMER
RECORD
CAMERA
? SYSTEM
EVENT



Press "**ENTER**" to confirm **SYSTEM** setup, and the screen will show the following options.

(SYSTEM)

? AUDIO INPUT : 1
INT AUDIBLE ALARM : ON
EXT AUDIBLE ALARM : ON
ALARM DURATION : 10 SEC
DWELL TIME : 02 SEC
MESSAGE LATCH : NO
TITLE DISPLAY :ON
TIME DISPLAY : Y/M/D
2003-JAN-02(THU) 17:37:09
NEW PASSWORD : XXXX
CLEARD HDD : NO
SYSTEM RESET : NO
REMOTE MODE : RS-232
BAUD RATE : 9600
REMOTE ID : 000

3.5.1 AUDIO INPUT setup:

This setting allows the user to set the AUDIO INPUT. User can choose one of 4 channels to record.

3.5.1.1 Press "**Up**" "**Down**" to choose AUDIO INPUT :

3.5.1.2 Press "**ENTER**" button to confirm AUDIO INPUT

3.5.1.3 Press "**Up**" "**Down**" to choose the AUDIO INPUT : **1~4**

3.5.1.4 Press "**MENU**" to exit and confirm the current operation.

3.5.1.5 Press "**MENU**" again to exit and close **SYSTEM** setup mode.

3.5.2 INT AUDIBLE ALARM setup:

This setting allows the user to set the INTERNAL AUDIBLE ALARM. The alarm will be trigged by an event occurrence when the setting is ON.

3.5.2.1 Press " **Up**" or " **Down**" to choose INT AUDIBLE ALARM

3.5.2.2 Press " **ENTER**" button to confirm INT AUDIBLE ALARM

3.5.2.3 Press " **Up**" or " **Down**" to choose the INT AUDIBLE ALARM : ON/OFF

ON: Internal Buzzer ON

OFF: Internal Buzzer OFF

3.5.2.4 Press " **MENU**" to exit and confirm the current operation.

3.5.2.5 Press " **MENU** " again to exit and close **SYSTEM** setup mode.

3.5.3 EXT AUDIBLE ALARM setup:

This setting allows the user to set the EXTERNAL AUDIBLE ALARM. The alarm will be trigged by an event occurrence when the setting is ON.

3.5.3.1 Press " **Up**" or " **Down**" to choose EXT AUDIBLE ALARM

3.5.3.2 Press " **ENTER**" button to confirm EXT AUDIBLE ALARM

3.5.3.3 Press " **Up**" or " **Down**" to choose the EXT AUDIBLE ALARM: ON/OFF

ON: External Buzzer ON

OFF: External Buzzer OFF

3.5.3.4 Press " **MENU**" to exit and confirm the current operation.

3.5.3.5 Press " **MENU**" again to exit and close **SYSTEM** setup mode.

3.5.4 ALARM DURATION Setup option:

This setting allows the user to set the ALARM DURATION. i.e. the length of time the buzzer will sound on alarm activation.

3.5.4.1 Press " **Up**" or " **Down**" to choose ALARM DURATION setup.

3.5.4.2 Press " **ENTER**" to confirm ALARM DURATION setup.

3.5.4.3 Press " **Up**" or "**Down**" to choose ALARM DURATION setup

10 SEC, 15 SEC, 20 SEC, 30 SEC, 1MIN, 2MIN, 3 MIN, 5 MIN, 10 MIN, 15 MIN, 30 MIN, ALWAYS.

3.5.4.4 Press " **MENU**" to exit and confirm the current operation.

3.5.4.5 Press " **MENU**" again to exit and close **SYSTEM** setup mode.

3.5.5 DWELL TIME setup

This setting allows the user to set the DWELL TIME. DWELL TIME is the length of time that each channel is sequentially shown on the CALL monitor output.

3.5.5.1 Press " **Up**" or " **Down**" to choose DWELL TIME setup.

3.5.5.2 Press " **ENTER**" to confirm DWELL TIME setup.

3.5.5.3 Press " **Up**" or " **Down**" to choose DWELL TIME setup.

01~10 SEC.

3.5.5.4 Press " **MENU**" to exit and confirm the current operation.

3.5.5.5 Press " **MENU**" again to exit and close **SYSTEM** setup mode.

3.5.6 MESSAGE LATCH setup

This setting allows the user to decide whether the External Alarm graph is displayed on the monitor or not.

3.5.6.1 Press " **Up**" or " **Down**" to choose MESSAGE LATCH setup

3.5.6.2 Press " **ENTER**" button to confirm MESSAGE LATCH setup

3.6.6.3 Press " **Up**" or " **Down**" to choose the MESSAGE LATCH : ON/OFF

ON : Message latch ON

OFF : Message latch OFF

3.6.6.4 Press " **MENU**" to exit and confirm the current operation.

3.6.6.5 Press " **MENU**" again to exit and close **SYSTEM** setup mode.

3.5.7 TITLE DISPLAY setup

This setting allows the user to set whether the title is shown on the monitor or not.

3.6.7.1 Press " **Up**" or " **Down** " to choose TITLE DISPLAY setup

3.6.7.2 Press " **ENTER**" button to confirm TITLE DISPLAY setup

3.6.7.3 Press " **Up**" or " **Down** " to choose TITLE DISPLAY : ON/OFF

ON : Title Display ON

OFF : Title Display OFF

3.6.7.4 Press " **MENU** " to exit and confirm the current operation.

3.6.7.5 Press " **MENU** " again to exit and close **SYSTEM** setup mode.

3.5.8 TIME DISPLAY format setup

This setting allows the user to set the time format on the monitor.

3.5.8.1 Press " **Up**" or " **Down** " to choose TIME DISPLAY setup.

3.5.8.2 Press " **ENTER** " to confirm TIME DISPLAY setup.

3.5.8.3 Press" **Up** " or " **Down** " to choose TIME DISPLAY setup.

OFF, Y/M/D, M/D/Y, D/M/Y.

3.5.8.4 Press " **MENU** " to exit and confirm the current operation.

3.5.8.5 Press " **MENU** " again to exit and close **SYSTEM** setup mode.

3.5.9 TIME setup:

This setting allows the user to set time on the monitor.

3.5.9.1 Press " **Up** " or " **Down** " to choose date display

3.5.9.2 Press " **ENTER** " to confirm date display format.

3.5.9.3 Press " **Up** " or " **Down** " to choose the correct Date & Time, and press " **Right** " or " **Left** " to move digit location.

3.5.9.4 Press " **MENU** " to exit and confirm the current operation.

3.5.9.5 Press " **MENU** " again to exit and close **SYSTEM** setup mode.

3.5.10 NEW PASSWORD : XXXX setup: (Default password : 0000)

This setting allows the user to set the new password.

3.5.10.1 Press " **Up** " or " **Down** " to choose NEW PASSWORD : XXXX setup.

3.5.10.2 Press " **ENTER** " to confirm NEW PASSWORD : XXXX setup.

3.5.10.3 Press " **Up** " or " **Down** " to choose number, and press" **Right** " or " **Left** " to move digit location.

3.5.10.4 Press " **MENU** " to exit and confirm the current operation.

3.5.10.5 Press " **MENU** " again to exit and close **SYSTEM** setup mode.

3.5.11 CLEAR HDD setup

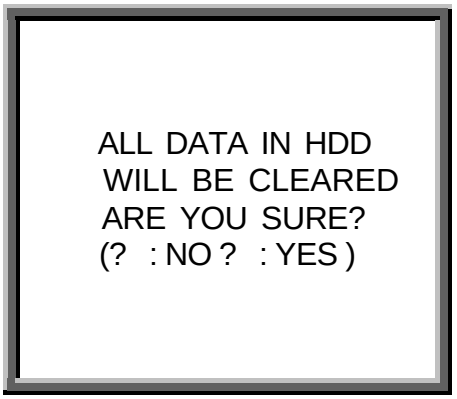
This setting allows the user to clear the HDD.

3.5.11.1 Press " **Up** " or " **Down** " to choose CLEAR HDD setup.

3.5.11.2 Press " **ENTER** " to confirm CLEAR HDD setup.

3.5.11.3 Press " **Up** " or " **Down** " to choose CLEAR HDD setup YES or NO.

YES: Confirm to clear HDD, and screen will show the following;



Press" ? " to clear HDD

NO: Confirm not to clear HDD.

3.5.11.4 Press " **MENU** " to exit and confirm the current operation.

3.5.11.5 Press " **MENU** " again to exit and close **SYSTEM** setup mode.

3.5.12 SYSTEM RESET setup

This setting allows the user to reset the system.

3.5.12.1 Press " **Up** " or " **Down** " to choose SYSTEM RESET setup.

3.5.12.2 Press " **ENTER**" to confirm SYSTEM RESET setup.

3.5.12.3 Press " " **Up** " or " **Down** " to choose SYSTEM RESET Yes or No

YES: To confirm System Reset (load default system reset)

NO: Confirm not to System Reset

3.5.12.4 Press " **MENU** " to exit and confirm the current operation.

3.5.12.5 Press " **MENU** " again to exit and close **SYSTEM** setup mode.

3.5.13 REMOTE MODE setup

This setting allows the user to set the remote mode.

3.5.13.1 Press " **Up** " or " **Down** " to choose REMOTE MODE setup

3.5.13.2 Press " **ENTER** " to confirm REMOTE MODE setup

3.5.13.3 Press " **Up** " or " **Down** " to choose Interface for REMOTE MODE setup

RS-232: Use RS-232 interface

RS-485: Use RS-485 interface

3.5.13.4 Press " **MENU** " to exit and confirm the current operation.

3.5.13.5 Press " **MENU** " again to exit and close **SYSTEM** setup mode.

3.5.14 Remote protocol Baud Rate setup

This setting allows the user to set the remote protocol baud rate.

3.5.14.1 Press " **Up** " or " **Down** " to choose Baud Rate setup.

3.5.14.2 Press " **ENTER** " to confirm

3.5.13.3 Press " **Up** " or " **Down** " to choose BAUD RATE setup

115200? 57600? 19200? 9600? 4800? 3600? 2400? 1200

3.5.14.4 Press " **MENU** " to exit and confirm the current operation.

3.5.14.5 Press " **MENU** " again to exit and close **SYSTEM** setup mode.

3.5.15 Remote protocol ID setup:

This setting allows the user to control different DMR's by setting RS232 remote protocol. ID number can be set from 000 to be 999.

3.5.15.1 Press " **Up** " or " **Down** " to choose ID setup.

3.5.14.2 Press " **ENTER** " to confirm ID setup

3.5.15.3 Press " **Up** " or " **Down** " to set numerical number, from **000 ~ 255**

3.5.15.4 Press " **MENU** " to exit and confirm the current operation.

3.5.15.5 Press " **MENU** " again to exit and close **SYSTEM** setup mode.

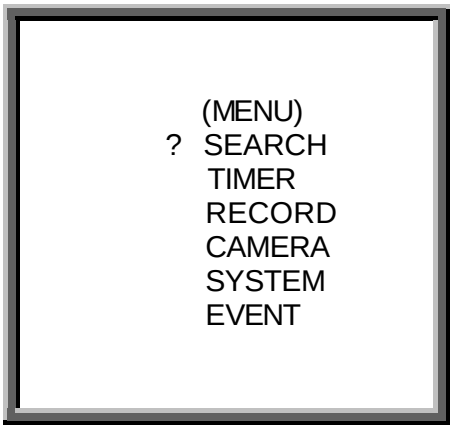
3.6 SEARCH setup

Press **"MENU"** to enter main menu. It is necessary to enter the password to access the main menu. Press " **Right** " or " **Left** " to move digit, and to press **Up** " or " **Down** " to select number. Press **"ENTER"** button to confirm password.

Ex.: Password: 0000 (Default: 0000)

After keying in the correct password, and confirming by pressing **"ENTER"** button, screen will show the following options;

SEARCH ------- Find recorded list
TIMER -------- Scheduling Record
RECORD------- Record Mode Setup
CAMERA ------- Camera Channel Setup
SYSTEM ------- System Setup
EVENT -------- Event List



3.6.1 LAST RECORD for recorded video

Press " **Up** " or " **Down** " to choose LAST RECORD item. The following screen will be displayed. Press "**ENTER**" to confirm LAST RECORD.

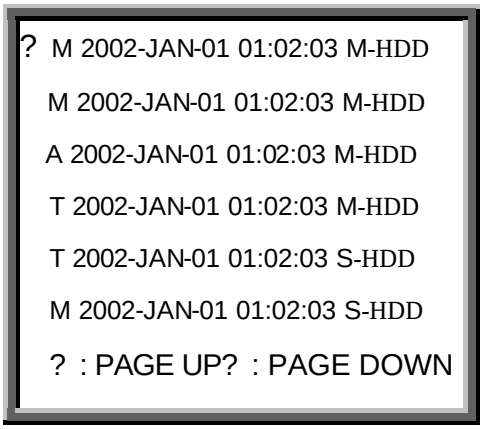
3.6.2 FULL LIST for recorded video

Press " **Up** " or " **Down** " to choose Full List item. The following screen will be displayed.

Press " **ENTER** " to confirm Full List, and the following screen will be displayed.

Press " **Up** " or " **Down** " to choose the desired recorded event (There will only be eight shown on one page.), and press "**Right** " or " **Left** " to change the pages.

Press "**ENTER**" to Play selected recorded video



M : Manual Record time / A : Alarm Record time

T : Timer Record time

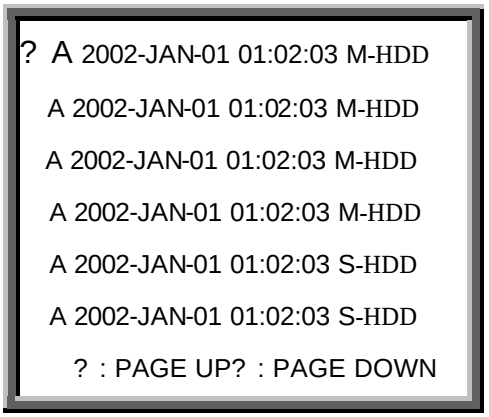
M-HDD : Storage in Master HDD

S-HDD : Storage in Slave HDD

3.6.3 ALARM LIST for recorded video

Press ” **Up** ” or “ **Down** ” to choose ALARM LIST. The following screen will be displayed.

Press “**ENTER**” to confirm FULL LIST, and the following screen will be displayed.
Press ” **Up** ” or “ **Down** ” to choose the desired recorded event (There will only be eight shown on one page.), and press “ **Left** ” or “ **Right**” to change the pages.
Press “**ENTER”** to Play selected recorded video



3.6.3 TIME SEARCH for recorded video

Press” **Up** ” or “ **Down** ” to choose Time Search item. The following screen will be displayed.

Press “**ENTER**” to confirm Full List, and the screen will be as displayed on the right.
Press ” **Up** ” or “ **Down** ” to choose the desired date & hour for recorded event , and press “ **Left** ” or “ **Right** ” to change the location.
Press “**ENTER”** to play select time recorded video. If there is no record in the database, the screen will display “ **NOT FOUND** ” .

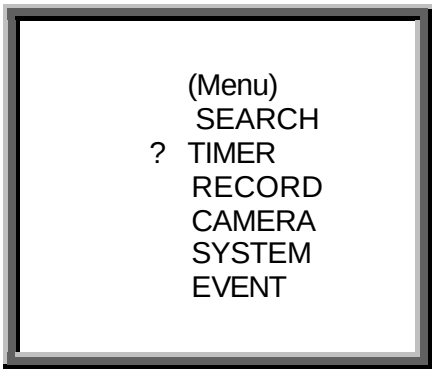
3.7 TIMER setup (Schedule Time-Lapse record mode setup)

3.7.1 Enter TIMER setup

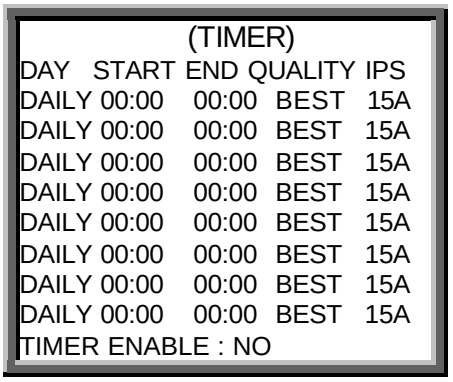
Press **"MENU"** to enter the main menu. It is necessary to enter the password to access the main menu. Press " Left " or "Right " to move digit, and press " Up " or " Down " to select number. Press **"ENTER"** button to confirm password.

Ex.: PASSWORD : 0000 (Default : 0000)

After keying in the correct password, and confirming by pressing **"ENTER"** button, the following screen will be displayed. SEARCH ------- find recorded list
TIMER ------- scheduling Record
RECORD------- Record Mode Setup
CAMERA ------- Camera Channel Setup
SYSTEM ------- System Setup
EVENT -------- Event List



Select TIMER item, and press "**ENTER"** button to confirm TIMER Record setup mode. The following screen will be displayed.


(TIMER)
DAY START END QUALITY IPS
DAILY 00:00 00:00 BEST 15A
DAILY 00:00 00:00 BEST 15A
DAILY 00:00 00:00 BEST 15A
DAILY 00:00 00:00 BEST 15A
DAILY 00:00 00:00 BEST 15A
DAILY 00:00 00:00 BEST 15A
DAILY 00:00 00:00 BEST 15A
DAILY 00:00 00:00 BEST 15A
TIMER ENABLE : NO

3.7.2 TIMER setup:

3.7.2.1 Press " **ENTER** " to confirm TIMER setup.

3.7.2.2 Press " **Up** " or " **Down** " to choose the Timer Record day

Daily : Everyday

MON : Monday

TUE : Tuesday

WED : Wednesday

THU : Thursday

FRI : Friday

SAT : Saturday

SUN : Sunday

MO-FR : Monday to Friday

SA-SU : Saturday & Sunday

JAN-01 : Special Date

OFF : Not activated

3.7.2.3 Press " **Left** " or " **Right** " to move to START record time 00:00 (HH:MM)

Press " **Up** " or " **Down** " to change START record time numerical digit

3.7.2.4 Press " **Left** " or " **Right** " to move to END record time 00:00 (HH:MM)

Press " **Up** " or " **Down** " to change END record Time numerical digit

3.7.2.5 Press " **Left** " or " **Right** " to move to QUALITY

Press" **Up** " or " **Down** " to choose options of

BEST, HIGH, NORMAL, BASIC

3.7.2.6 Press " **Left** " or " **Right** " to move to Record IPS (Images Per Second)

Press" **Up** " or " **Down** " to choose options of

PAL- 12A? 12? 6? 3? 2? 1

3.7.2.7 Press **"MENU"** to confirm the current operation, and move to the next Timer Record setup.

3.7.2.8 Press " **Left** " or " **Right** "to move location to Timer Enable: Yes or No setup

YES : To confirm Timer Enable: Scheduling Timer Record function

NO : To confirm no Timer Enable: No Scheduling Timer Record function

3.7.2.9 Press " **MENU** " to exit and confirm the current operation.

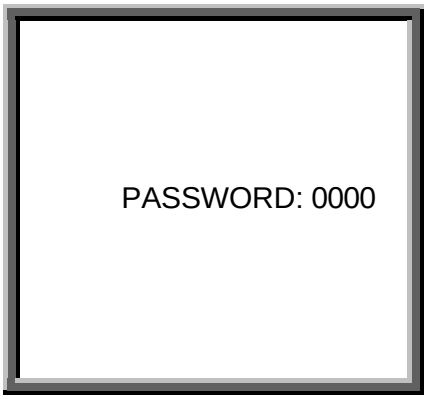
3.7.2.10 Press again " **MENU** " to exit and close TIMER setup mode.

3.8 RECORD MODE setup

3.8.1 To Enter " Record " setup

Press **"MENU"** to enter the main menu. It is necessary to enter the password to access the main menu. Press " **Left** " or " **Right** " to move digit, and press " **Up** " or " **Down** " to select number. Press " **ENTER** " button to confirm password.

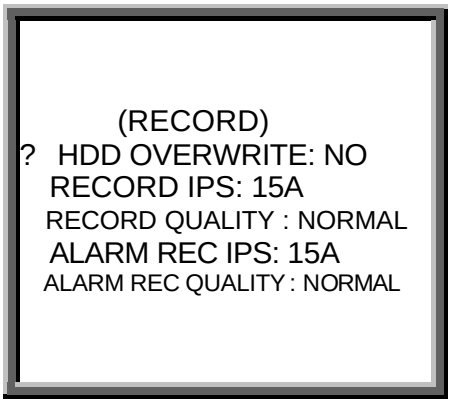
Ex.: PASSWORD: 0000 (Default: 0000)



After keying in the correct password, and confirming by pressing " **ENTER** " button, the following screen will be displayed.

SEARCH ------- find recorded list
TIMER ------- scheduling Record
RECORD------- Record Mode Setup
CAMERA ------- Camera Channel Setup
SYSTEM ------- System Setup
EVENT -------- Event List

To choose Record item, and press " **ENTER** " to enter Record mode. The following screen will be displayed.



3.8.2 HDD OVERWRITE setup :

3.8.2.1 Press ” **ENTER**” to confirm HDD OVERWRITE setup.

3.8.2.2 Press ” **Up** ” or “ **Down** ” to choose HDD OVERWRITE.

NO : When HDD is full it will stop recording

YES : When HDD is full it will overwrite the HDD recording

3.8.2.3 Press ” **MENU** ” to exit and confirm the current operation.

3.8.2.4 Press again ” **MENU** ” to exit and close HDD OVERWRITE setup mode.

3.8.3 RECORD IPS setup:

3.8.3.1 Press ” **ENTER**” to confirm RECORD IPS setup.

3.8.3.2 Press ” **Up** ” or “ **Down** ” to choose IPS record speed.

PAL- 12A? 12? 6? 3? 2? 1

3.8.3.3 Press ” **MENU** ” to exit and confirm the current operation.

3.8.3.4 Press ” **MENU** ” again to exit and close RECORD IPS setup mode.

3.8.4 RECORD QUALITY setup

3.8.4.1 Press ” **ENTER** ” to confirm Record Quality setup.

3.8.4.2 Press” **Up** ” or “ **Down** ” to choose Record Quality level.

BEST, HIGH, NORMAL, BASIC

3.8.4.3 Press ” **MENU** ” to exit and confirm the current operation.

3.8.4.4 Press ” **MENU** ” again to exit and close RECORD QUALITY setup mode.

3.8.5 ALARM REC IPS setup

3.8.5.1 Press ” **ENTER** ” to confirm ALARM REC IPS setup.

3.8.5.2 Press ” **Up** ” or “ **Down** ” to choose ALARM REC IPS record speed.

PAL- 12A? 12? 6? 3? 2? 1

3.8.5.3 Press ” **MENU** ” to exit and confirm the current operation.

3.8.5.4 Press again ” **MENU** ” to exit and close ALARM REC IPS setup mode.

3.8.6 ALARM REC QUALITY setup

3.8.6.1 Press ” **ENTER** ” to confirm ALARM REC QUALITY setup.

3.8.6.2 Press” **Up** ” or “ **Down** ” to choose ALARM REC QUALITY level.

BEST, HIGH, NORMAL, BASIC

3.8.6.3 Press ” **MENU** ” to exit and confirm the current operation.

3.8.6.4 Press again ” **MENU** ” to exit and close ALARM REC QUALITY setup mode.

3.9 CAMERA setup

Press **"MENU"** to enter main menu. It is necessary to enter password to access the main menu. Press " **Left** " or " **Right** " to move digit, and to press " **Up** " or " **Down** " to select number. Press " **ENTER** " button to confirm password.

Ex.: Password : 0000 (Default : 0000)

After keying in the correct password, and confirming by pressing " **ENTER** " button, Following screen will be displayed.

SEARCH ------- find recorded list
TIMER ------- Scheduling Record
RECORD------- Record Mode Setup
CAMERA ------- Camera Channel Setup
SYSTEM ------- System Setup
EVENT -------- Event List

CAMERA setup

	TITLE	DWELL	☼	◑	▮	ALARM	RECORD
?	---- 01	ON	5	5	5	LOW	EVENT
	---- 02	ON	5	5	5	LOW	EVENT
	---- 03	ON	5	5	5	LOW	EVENT
	---- 04	ON	5	5	5	LOW	EVENT
	---- 05	ON	5	5	5	LOW	EVENT
	---- 06	ON	5	5	5	LOW	EVENT
	---- 07	ON	5	5	5	LOW	EVENT
	---- 08	ON	5	5	5	LOW	EVENT
	---- 09	ON	5	5	5	LOW	EVENT
	---- 10	ON	5	5	5	LOW	EVENT
	---- 11	ON	5	5	5	LOW	EVENT
	---- 12	ON	5	5	5	LOW	EVENT
	---- 13	ON	5	5	5	LOW	EVENT
	---- 14	ON	5	5	5	LOW	EVENT
	---- 15	ON	5	5	5	LOW	EVENT
	---- 16	ON	5	5	5	LOW	EVENT

3.9.1 TITLE :It allows assignment of a title to each camera input. Initially each title is the camera's number 01 -16

3.9.1.1 Press" **Up** " or " **Down** " : Select channel in the Channel setup

3.9.1.2 Press **ENTER**: Confirm the channel

3.9.1.3 Press " **Left** " or " **Right** " : Select the location of title (6 characters maximum)

3.9.1.4 Press " **Up** " or " **Down** " : Select the characters for display (**0~9, A~Z,-, :, (,),**)

3.9.1.5 Press " **MENU** " : Confirm and exit the title setting

3.9.1.6 Press " **MENU** " : Exit the Channel setup

3.9.2 DWELL**:** to set up auto switching channel

3.9.2.1 Press " **Up** " or " **Down** " : Select channel in the Channel setup

3.9.2.2 Press " **ENTER** ": Enter the channel setup

3.9.2.3 Press " **Left** " or " **Right** " : Select DWELL on the screen

3.9.2.4 Press " **Up** " or " **Down** " : Select ON/OFF on the screen

3.9.2.5 Press " **MENU** " : Confirm and exit the dwell setting

3.9.2.6 Press " **MENU** " : Exit the channel setup

3.9.3 **(Brightness) / (Contrast) / (Color)**: video adjustment of each channel

3.9.3.1 Press " **Up** " or " **Down** " : Select channel in the Channel setup

3.9.3.2 Press "**ENTER"** Enter the channel setup

3.9.3.3 Press " **Left** " or " **Right** " : Select brightness/contrast/color on the screen

3.9.3.4 Press " **Up** " or " **Down** " : Set up **0~9** on the screen.

3.9.3.5 Press "**MENU** " : Confirm and exit the brightness/contrast/color setting.

3.9.3.6 Press "**MENU**": Exit the channel setup

3.9.4 ALARM

3.9.4.1 Press " **Up** " or " **Down** " : Select channel in the Channel setup

3.9.4.2 Press "**ENTER"** Enter the cannel setup

3.9.4.3 Press " **Left** " or " **Right** " : Select ALARM on the screen

3.9.4.4 Press " **Up** " or " **Down** " : Select LOW/OFF/HIGH for alarm priority.

3.9.4.5 Press "**MENU**":" Confirm and exit the alarm setting.

3.9.4.6 Press "**MENU**":" Exit the channel setup

3.9.5 RECORD

3.9.5.1 Press " **Up** " or " **Down** " : Select channel in the Channel setup

3.9.5.2 Press "**ENTER**" : Enter the channel setup

3.9.5.3 Press " " **Left** " or " **Right** " : Select Record on the screen.

3.9.5.4 Press " **Up** " or " **Down** " : Select DMR record method as below (DMR will only record the channel which has been set up for **EVENT**/ **NORMAL**/ **OFF**)

EVENT : when alarm input is triggered, the DMR will record the alarming channel more frequently. For example : the DMR normal record method is 1-2-3-4-5-…….-16. In Event mode, when CH01 is triggered, the record method will become 1-2-1-3-1-4-1-5-…-16.

NORMAL : when external alarm is on, the DMR will record normally as set up.

OFF : the DMR will not record

3.9.5 Press " **MENU** " : Confirm and exit the record setting

3.9.6 Press " **MENU** ": Exit the channel setup

3.10 *MOTION DETECTION setup*

3.10.1 Press " **MENU** " to enter the menu set up, then " **Down**" to **CAMERA** setup, Press "ENTER" twice to enter the Motion Detection Setup .

3.10.2 Each screen displays the current camera picture overlaid with the motion targets (as Figure 1). You can push the button " **Left** " or " **Right** "**,** " **Up** " or " **Down** " to adjust motion detection in **ON** or **OFF**.

3.10.3 The targets on each motion setup can be turned to ON or OFF individually by row. To set up targets, using the following front panel buttons:

3.10.3.1 Press **'ENTER"** to confirm the channel

3.10.3.2 Press **"ENTER"** to enter motion mode

3.10.3.3 **? Up** -- moves the target cursor up one row at a time.

3.10.3.4 **? Down** -- moves the target cursor down one row at a time.

3.10.3.5 **? Left** -- moves the target cursor left one column at a time.

3.10.3.6 **? Right** -- moves the target cursor right one column at a time.

3.10.3.7 Press **"ENTER"** to turn the target cursor ON
Press "**ENTER"** again to turn the target cursor OFF

3.10.3.8 **Camera Select (1-15)** -– toggles the corresponding target on the cursor line ON or OFF. (Figure 1) There are only 15 targets in a row, therefore; only Camera Selected (1-15) can be operated.

3.10.3.9 **Zoom –** turns all targets in the current row ON or OFF. (Figure 1-2)

3.10.3.10 **PIP –** turns all targets on the screen ON or OFF. (Figure 1-3)

3.10.4 Press " **SLOW** " button to setup the Sensitivity list **up to 255**
Press " **REC** " button to setup the Sensitivity list **down to 000**
Sensitivity value is related to motion and brightness change.
Low value (as 001) means higher sensitivity on motion and brightness change.
High value (as 255) means lower sensitivity on motion and brightness change.
User can choose the suitable sensitivity value in different locations.
The default value is set on 32.

Note:
If Motion Detection is set, and when activated, there will be two actions as follows:
1). Live video - the motion detected camera(s) will be scanned more frequently, if the Video setup is for 16 cameras, the sequence to scan the cameras are from 1st, 2nd, 3rd... until 16th camera, but if the motion is detected on Camera #1, the sequence to scan #1 camera will be more frequently. It will be scanning as 1st, 2nd, 1st, 3rd, 1st, 4th...1st, 16th.
The motion-detected camera will be scanned more frequently, which will be one after another camera been detected. If the 2nd and 3rd camera both motion detection are activated, they will be scanning as 1st, 2nd, 3rd, 2nd, 2nd, 3rd, 3rd, 2nd, 3rd, 4th, 2nd, 3rd....3rd, 16th, 2nd, 3rd and vice versa.

2). Recorded Video - more frequently video will be recorded for the motion detected cameras, the function is the same as Live video in the above mentioned.

Basically, the motion detection will only change the scanning sequence while in live mode or in Record mode. It doesn't show any sign on the monitor and it cannot automatically change the mode from Standby Mode to Record Mode.

Figure 1 **MOTION DETECTION SETUP**

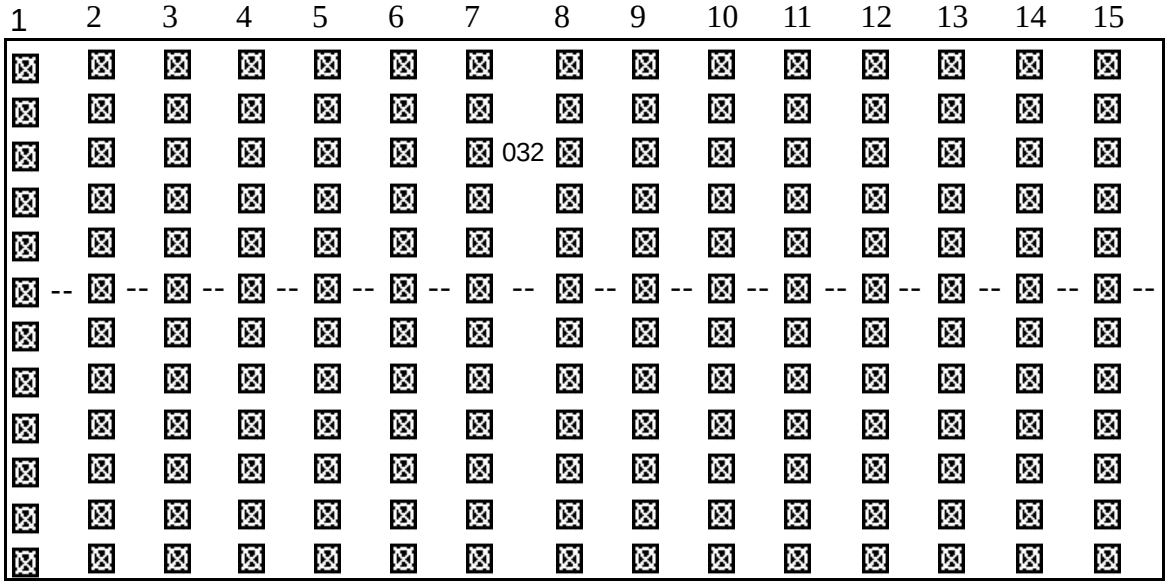


Figure 1-1 **MOTION DETECTION SETUP – 1~16**

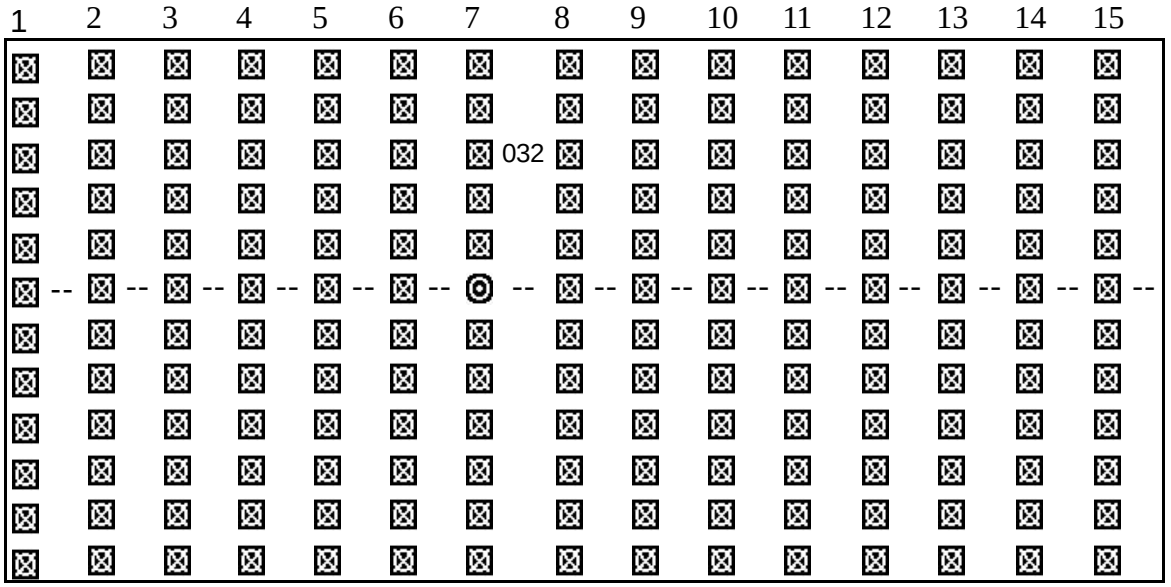


Figure 1-2 **MOTION DETECTION SETUP – LINE**

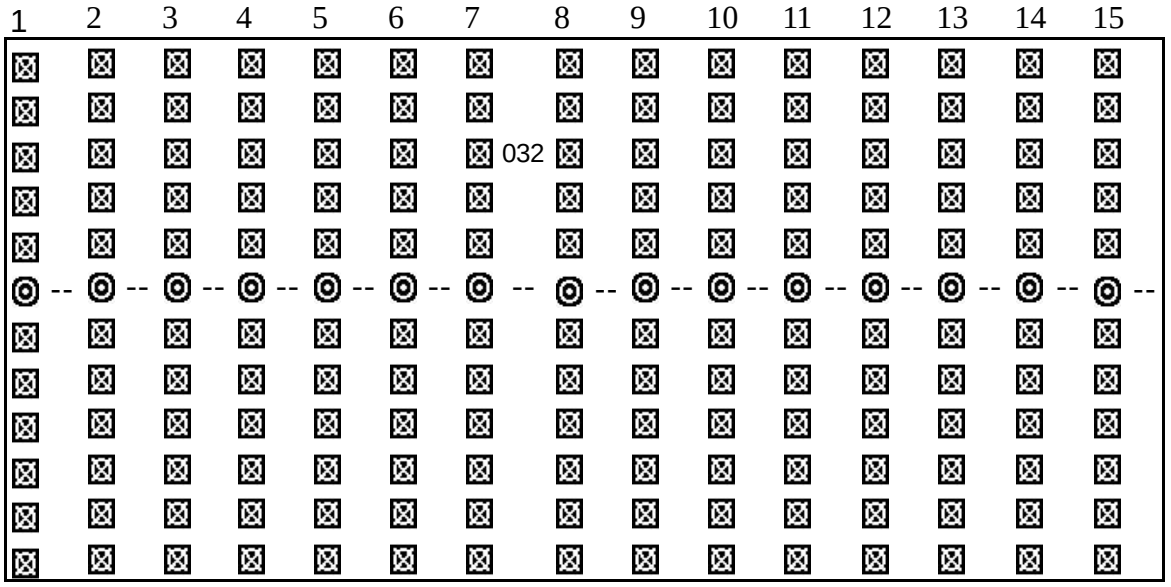
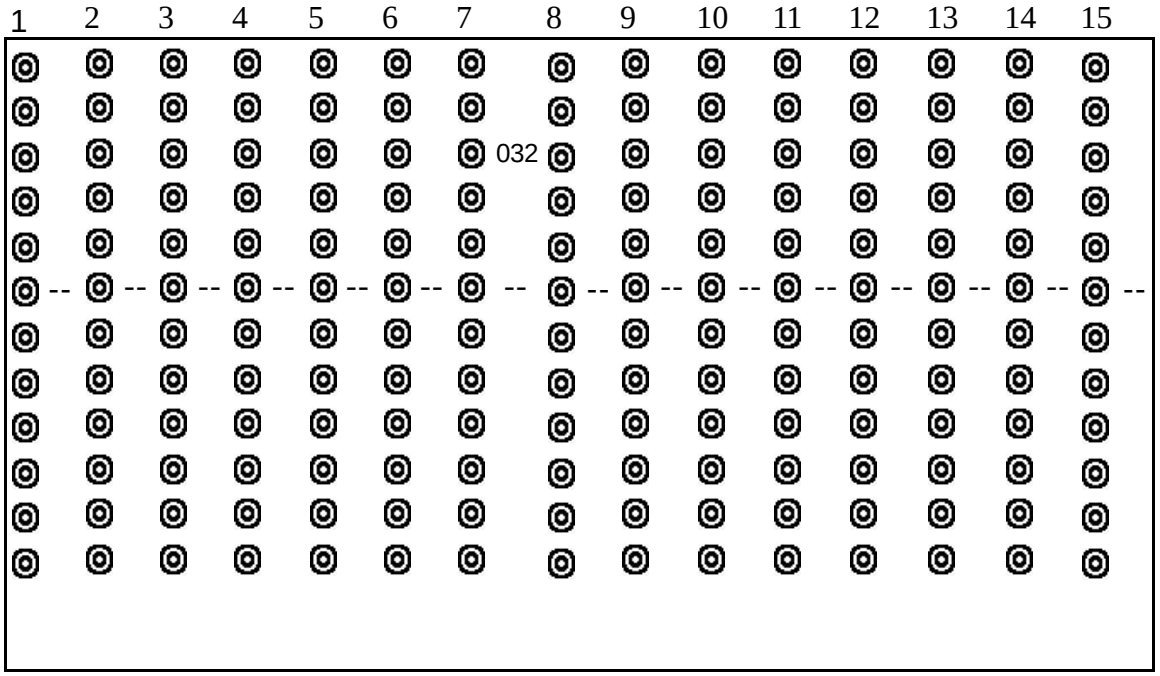


Figure 1-3 **MOTION DETECTION SETUP – ALL**



3.11 Event

3.11.1 Enter " Event " list

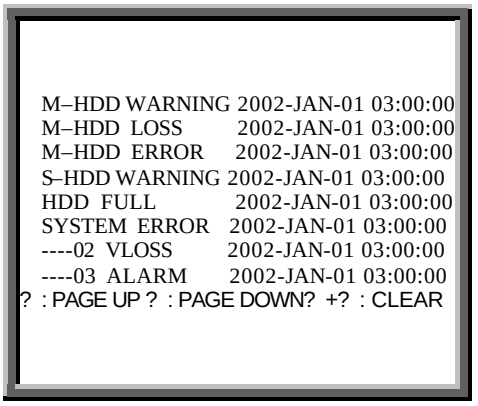
Press **"MENU"** to enter main menu. It is necessary to enter the password to access the main menu. Press " **Left** " or " **Right** " to move digit, and to press" **Up** " or " **Down** " to select number. To press **"ENTER"** button to confirm password.

Ex.: Password: 0000 (Default: 0000)

After keying in the correct password, and confirming by pressing **"ENTER"** button, The following screen will be displayed.

SEARCH ------- Find recorded list
TIMER -------Scheduling Record
RECORD------- Record Mode Setup
CAMERA ------- Camera Channel Setup
SYSTEM ------- System Setup
EVENT -------- Event List

Press "**ENTER**" to confirm Full List, and the screen will be displayed as shown on the right.
Press " " **Up** " or " **Down** " to choose desired recorded event (Only eight recorded events will be shown on a single page), and press " **Left** " or " **Right** " to change the pages.
Press "**ENTER"** to Play selected recorded video


M–HDD WARNING 2002-JAN-01 03:00:00
M–HDD LOSS 2002-JAN-01 03:00:00
M–HDD ERROR 2002-JAN-01 03:00:00
S–HDD WARNING 2002-JAN-01 03:00:00
HDD FULL 2002-JAN-01 03:00:00
SYSTEM ERROR 2002-JAN-01 03:00:00
----02 VLOSS 2002-JAN-01 03:00:00
----03 ALARM 2002-JAN-01 03:00:00
? : PAGE UP ? : PAGE DOWN? +? : CLEAR

M-HDD WARNING: Master HDD might be failed.
M-HDD LOSS: Master HDD does not exist. Now user can use the other HDD.
M-HDD ERROR: Master HDD might be error
S-HDD WARNING: Slave HDD might be failed
S-HDD LOSS: Slave HDD does not exist. Now user can use the other HDD.
S-HDD ERROR: Slave HDD might be error
HDD FULL: HDD is full
SYSTEM ERROR: System might be failed
----02 VLOSS: Channel: 2 Video loss
----03 ALARM: Channel: 3 External I/O Alarm have triggered
POWER RESTORE : Power restore

4. Operation

4.1 Power on

Before turning on the power, make sure the HDD has been locked, and the POWER LED is red. After pressing the POWER button, the POWER LED will turn to orange colour, then all other LED lights will turn to RED colour except the LED for the HDD. OSD screen will display “HDD Detecting”, Power on period will take approximately 15 to 20 seconds. The screen will then show HDD Master and Slave connected. After setup period of DMR the POWER LED will turn to green colour. (You can set up HDD to be Master or Slave by jumper setting on HDD.)

4.2 Recording

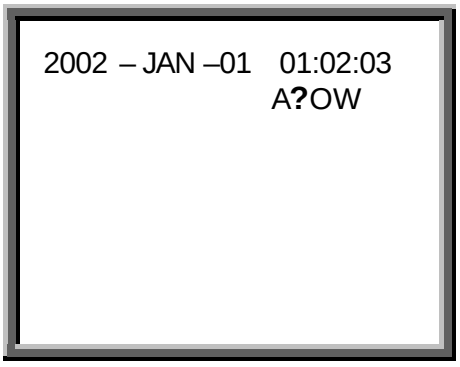
Your DMR offers a variety of flexible recording modes. You can set it up to record continually, scheduled time, or by record events, and you can also set up recording speed and resolution. You can set these options by selecting MENU and System before recording. Under the recording status, if power is stopped accidentally, recorded video will still store in the HDD after power on. DMR will continue with original recording setup after power return.

There are 3 record modes for DMR: Alarm Record, Timer Record, and Manual Record. All Record Mode descriptions are as follows;

4.2.1 Alarm Record

When DMR is triggered by alarm input, it will start to record immediately. The following screen will be displayed.

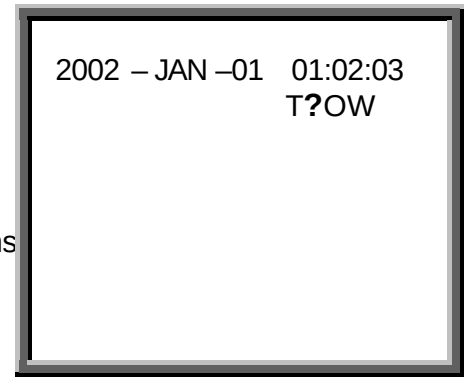
A : Alarm trigger
OW : HDD Over Write
032GB : If the OW location shows 32GB, it means that 32 GB HDD is left for video recording. (1 HDD installed)
001GB : If the OW location shows 32GB, it means
032GB that 32 GB left in slave HDD and 1 GB left in the aster HDD for video recording. (2 HDD installed)



4.2.2 Timer Record

DMR will follow Timer setup to record, and the recording speed and quality will be as the timer recording mode setup in main menu.

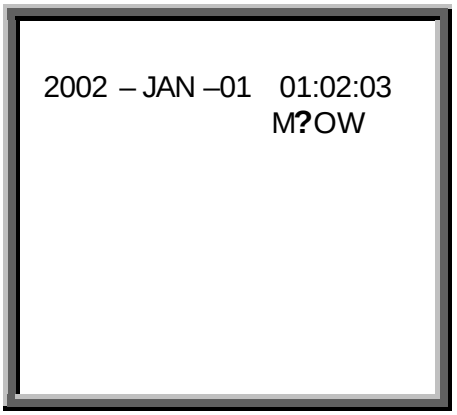
The screen will be as displayed on the right.
T : Timer record
OW : HDD Over Write
032GB : If the OW location shows 32GB, it means that 32 GB HDD left for video recording. (1 HDD installed)
001GB : If the OW location shows 32GB, it means
032GB that 32 GB left in slave HDD and 1 GB left in master HDD for video recording. (2 HDD installed)



4.2.3 Manual Record

You can press **"REC"** to start recording immediately. The recording speed & quality will be as the "Record" recording mode setup in main menu.

The following screen will be displayed.
M : Manual record
OW : HDD Over Write
032GB : If the OW location shows 32GB, it means that 32 GB HDD left for video recording.
001GB : If the OW location shows 32GB, it
032GB means that 32 GB left in slave HDD and 1 GB left in master HDD for video recording. (2 HDD installed)



4.3 Camera Select (1-16)

Press Camera Select Button (1-16) to select the camera to display in full screen mode.

4.4 Select

This setting allows the user to get the ideal view size.

4.4.1. Press , , button to make different view size.

4.4.2 Press " **Select** " then " **Left** " or " **Right** " button to locate the desired position.

4.4.3 Press " **Camera Select (1-16)** " to select the appointed camera.

4.4.4 Press " **Menu** " to exit.

4.5 Picture in Picture (PIP)

Press PIP button to enter PIP display screen. The PIP format displays a full screen "background" picture with a 1/16 size screen 'insert".

4.5.1 Press button to display the last selected PIP mode. ID - the camera numbers appear on the bottom of the screen

4.5.2 To change the selection press SELECT. When the camera ID flashes a new camera can be selected by pressing the individual camera button. This applies to both the main picture and the insert.

4.5.3 Press " **Menu** " to exit

4.6 Zoom

Press ZOOM button to enlarge the display of main picture. It displays zoom picture on main picture and a small window inserted. The inserted window contains a movable 1/4 view size of the appointed camera.

4.6.1 Press the appointed " **Camera Select (1-16)** ".

4.6.2 Press " **Zoom** " button to be zoom mode.

4.6.3 Press the "**Zoom** " button again to move the zoom pointer.

4.6.4 Press " **Camera Select (1-16)** " to exit.

4.7 Play

Press " **PLAY** " then DMR will enter the Play mode; it will show the last record.

4.7.1 Fast Forward (F.F.) & Fast Rewind (F.R.)

4.7.1.1 Press " **PLAY** " and press " ? ? " for fast forward searching. Press once " ? ? " to get speed for 2X. Press twice "? ? " to get speed for 4X,. …And the maximum speed can be 32X.

4.7.1.2 Press " **PLAY** " then Press "? ? " for fast rewind searching. Press once "? ? " to get speed for 2X. Press twice "? ? " to get speed for 4X, … and the maximum speed can be 32X.

4.7.2 Slow Forward (S.F.) & Slow Rewind (S.R.)

4.7.2.1 Press " **PLAY** " then press " **SLOW** " for slow play, Press once "? ? " for slow forward speed 1/2X. and press twice "? ? " speed for 1/4X, ….the minimum slow speed can be 1/32X.

4.7.2.2 Press " **PLAY** " then press " **SLOW** " for slow forward, Press once " ? ? " for

slow rewind speed 1/2X, and press twice “? ? ” speed for 1/4X, ….the minimum slow speed can be 1/32X.

4.7.3 Pause : Press “ **PLAY** ” then press “ **PAUSE** ”, it will pause the screen

4.7.4 Stop : Press “ **STOP** ” under any circumstance, it will return DMR to live monitoring mode.

4.7.5 Image jog dial

4.7.5.1 Press “ **PLAY** ” then press “ **PAUSE** ”, it will pause the screen. Then press “? ? ” for single image play, it will show the recorded image one by one when continuously pressing the ” ? ? ”.

4.7.5.2 Press “ **PLAY** ” then press “ **PAUSE** ”, it will pause the screen. Then press “? ? ” for single image play, it will show the recorded image one by one by continuously pressing the ” ? ? ”.

4.8 VIDEO LOSS

Screen will display “ ”if the video input is not connected properly.

4.9 KEY LOCK

Press “ **MENU** ” and “ **ENTER** “ key at same time, Screen will display “ KEY LOCK ” it will be going to the Key Lock function.

Press “**MENU**” and “**ENTER** “ key again at the same time, Screen will display “ KEY UNLOCK ” it will stop the Key Lock function.

5. Trouble shooting & Appendix

5.1 Trouble shooting

When DMR appears to malfunction; it may be not serious and can be corrected. The table below describes some typical problems and their remedies. Check them before calling your DMR dealer:

PROBLEM	REMEDY
HDD Not Found	● Please Insert HDD ● Please use the Key to lock the HDD Cartridge And press any key
No power	● Check power cord connections. ● Confirm that there is power at the outlet.
Not working when press any button	● Check if it is under Key Lock mode. ● Press "**MENU"** & "**ENTER"** at same time to exist Key Lock mode.
No recorded video	Check if the HDD is installed properly.
Timer Record enable does not working	Check if the Record Enable is set to YES
No live video	● Check camera video cable and connections. ● Check monitor video cable and connections. ● Confirm that the camera has power. ● Check camera lens setting.

(If two HDDs are set up, one should be selected as " Master " and the other should be selected as " Slave". Otherwise, please set the two HDDs to Cable Select.)

5.2 Compatible HDD brands

Manufacturer	Model	Capacity	Rotation
IBM	Deskstar 120GXP (40GB)	40GB	7200 rpm
IBM	Deskstar 60GXP IC35l060	60GB	7200 rpm
IBM	Deskstar 120GXP (80GB)	80GB	7200 rpm
IBM	Deskstar 120GXP (120GB)	120GB	7200 rpm
Maxtor	DiamondMax 536DX(60GB) 4W060H4	60GB	5400 rpm
Maxtor	DiamondMax Plus 9, Model#6Y120L	120GB	7200 rpm
Seagate	Barracuda ATA IV ST340016A	40GB	7200 rpm
Seagate	Barracuda ATA V, ST3120023A	120GB	7200 rpm
Western Digital	Caviar WD400BB-00BSA0	40GB	7200 rpm
Western Digital	Caviar WD400EB-00CPF0	40GB	5400 rpm

Note 1 :

The above brands and models of HDD have been tested and they are compatible with this appliance.

Note 2 :

Please remove HDD 60 seconds after power off. This action will prevent damage to the HDD.

Note 3 :

Master or Slave HDD should be set up before HDD Jumper.

Note 4 :

Cable Select is suggestive for HDD Jumper.